Please amend the following claims as follows:

1. (amended) A linear stepper motor, comprising;

(a) an annular stator structure;

(b) an axially extending, cylindrical, permanent magnet shaft extending coaxially through said annular stator structure; [and]

(c) said axially extending, cylindrical, permanent magnet shaft having a smooth external surface along a portion thereof with axially alternating N and S poles defined circumferentially in an outer periphery of said portion of said axially extending, cylindrical, smooth, permanent magnet shaft; and

(d) said axially extending, cylindrical, permanent magnet shaft is formed from one homogeneous piece of material.

11. (amended) A linear stepper motor, as defined in Claim 1, wherein: said stator structure has modular stator stacks with pole pieces to concentrate and direct magnetic flux.

15. (amended) A linear stepper motor, as defined in Claim 1, wherein: said linear stepper motor requires no lubrication of [any part] coengaged parts thereof.

Please insert the following new claims:

17. A linear stepper motor, comprising:

(a) an annular stator structure;

(b) an axially extending, cylindrical, permanent magnet shaft extending coaxially through said annular stator structure;

(c) said axially extending, cylindrical, permanent magnet shaft having a smooth external surface along a portion thereof with axially alternating N and S

poles defined circumferentially in an outer periphery of said portion of said axially extending, cylindrical, smooth, permanent magnet shaft;

(d) said portion of said axially extending, cylindrical, permanent magnet shaft has a solid core; and

(e) said solid core is formed from a non-magnetic material.

18. A linear stepper motor, comprising;

(a) an annular stator structure;

(b) an axially extending, cylindrical, permanent magnet shaft extending coaxially through said annular stator structure;

(c) said axially extending, cylindrical, permanent magnet shaft having a smooth external surface along a portion thereof with axially alternating N and S poles defined circumferentially in an outer periphery of said portion of said axially extending, cylindrical, smooth, permanent magnet shaft; and

(d) said stator structure includes annular disks of a high lubricity material spacing apart elements of said stator structure and serving as bearing surfaces for said axially extending shaft.